

## ABSTRACT

5 A bandwidth efficient subscriber unit initialization and synchronization method and apparatus is described. The inventive subscriber unit initialization and synchronization method and apparatus uses a combination of an access burst format and a data transportation technique to efficiently use bandwidth when initializing and synchronizing subscriber units in a time-synchronized communication system. Advantageously, the present invention provides a mechanism for a base station to receive multiple access bursts from multiple subscriber units in a single contiguous time period. In the preferred embodiment of the present invention, 10 bandwidth is efficiently utilized by searching for multiple initial access bursts from multiple mobile stations during a single time period known as a new access opportunity. The preferred embodiment of the present invention initializes and synchronizes subscriber units in a "contention-based " manner.

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